Lat 40.24146 Lon -120.52643

Forest Health Protection
Pacific Southwest Region

Date: August 29, 2006
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To: Mr. Stacy Dixon, Tribal Chairman, Susanville Indian Rancheria

Subject: Evaluation of the Upper Rancheria Property (FHP Report NE06-11)

At the request of Tim Keesey, Environmental Manager, Susanville Indian Rancheria, I conducted a field evaluation of the Upper Rancheria property, next to the city of Susanville, on June 9, 2006. The objective of my visit was to evaluate the existing forest health conditions and to provide management recommendations as appropriate.

Background

The Upper Rancheria Property, an 875-acre parcel owned by the Susanville Indian Rancheria, is located north of, and adjacent to, the city of Susanville, CA at an elevation of 4500 feet. Precipitation for the site averages approximately 14-18 inches per year. The land is partially forested near the northern and western property boundaries while the southern half is mostly open with sagebrush (*Artemisia tridentata*) and bitterbrush (*Purshia tridentata*). Jeffrey pine (*Pinus jeffreyi*), ponderosa pine (*Pinus ponderosa*), western juniper (*Juniperus occidentalis*), black oak (*Quercus kelloggii*) and curlleaf mountain mahogany (*Cercocarpus ledifolius*) are all present within the forested areas. Jeffrey and ponderosa pine exist in nearly pure stands with scattered black oak and western juniper at the west end of the property. Western juniper is the dominant tree species, with scattered pine, black oak and curlleaf mountain mahogany, occurring in the northeast corner of the property. Western juniper is also expanding its range into the shrub, forb, and grass communities in this area similar to most areas of the Modoc plateau region. The management objectives for the site are to maintain healthy tree and shrub communities for wildlife and recreation and to reduce the risk of stand replacing wildfire.

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Observations

Very few forest insect and disease pests were observed on the Upper Rancheria property and only one pocket of tree mortality was found (in Jeffrey pine). This small group of Jeffrey pine, infected with western dwarf mistletoe (*Arceuthobium campylopodum*), was attacked and killed by Jeffrey pine beetles (*Dendroctonus jeffreyi*) at least 1-2 years ago (Figure 1).

There is evidence that a fire burned a portion of this area within the last 50 to 100 years that has allowed black oak to be more abundant than pine species relative to most places where fire exclusion has led to an increase in conifer competition and a corresponding reduction in hardwoods. These black oak stands now have many young ponderosa and Jeffrey pines present, some of which will overtop existing oaks in the next 10-20 years.

Figure 1. Jeffrey pine killed by Jeffrey pine beetle.

Juniper is expanding its range into the shrub dominated portion of the property and is also becoming denser within its existing range to the exclusion of black oak, curlleaf mountain mahogany, bitterbrush and sagebrush.

Ladder fuels, in the form of shrubs, dead and down trees and low live crown bases are a potential threat to the existing trees, especially black oak, in the event of a wildfire.

Discussion and Recommendations

The forested areas on the Upper Rancheria property are in a reasonably healthy condition for being located on the forest/desert interface. High stand density is not a problem as Ponderosa and Jeffrey pine are mostly scattered except for one denser stand on the western edge of the property. Bark beetle caused mortality is limited to pockets of dwarf mistletoe infected trees but western dwarf mistletoe is currently at very low levels and should not spread significantly due to the wide spacing of host tree crowns.

Black oaks are growing in much denser stands than pine species but no mortality is occurring due to competition. However, black oaks that occur as multiple stemmed trees may benefit from the removal of some stems to promote faster tree growth. This treatment should promote the growth of larger trees that may be more resistant to fire if combined with ladder fuel reduction, especially the pruning of dead limbs and low growing branches. Where black oak and ponderosa or Jeffrey pine crowns are intertwined it may be desirable to remove one species for the benefit of the other as pines will tend to shade out oaks and oaks may serve as fuel ladders to pine crowns in the event of a wildfire.

Western juniper is interspersed with oaks and pines throughout most of the property and is growing in dense stands in the northeastern corner. Western juniper is a major competitor for soil moisture and can also overtop oaks thus reducing their vigor. Where black oaks and pines are the desired tree species, western juniper density should be reduced.

Western juniper should also be thinned back if the promotion of native shrubs, forbs and grasses is desired. However, in some cases, invasive non-native plants such as cheat grass may benefit more from tree removal than the desired native vegetation. Much depends on the pre-treatment density of the juniper stands and the relative abundance of both non-native and native vegetation within the stands. Furthermore, the type of treatment will have an impact on the resulting vegetation response. For example, mechanical thinning is likely to cause greater soil disturbance than hand thinning which may provide more opportunities for the establishment of non-native vegetation. A treatment alternative that may be beneficial would be to first remove junipers on the edge of the stand where they have only recently encroached on other vegetation and then select and remove trees from within the stand over time until the desired conditions are achieved. Taking this more gradual approach to juniper removal will allow for an ongoing assessment of the vegetation response. All juniper thinning treatments will likely require follow up treatments as juniper tends to regenerate from low stump branches.

It is recommended that excessive amounts of green pine slash created from thinning operations during the late winter or early spring be chipped or cut into firewood and removed from the site in order to prevent population buildup of the pine engraver beetle (*Ips pini*). If allowed to sit untreated, infested green pine slash could produce a significant number of adults that may attack live trees. These attacks may result in top kill or whole tree mortality within the stand. Alternatively, this material could be piled and burned with dry fuels before beetle emergence (generally in mid-April in this area) if weather conditions permit. For most of the Upper Rancheria property the scattered slash and the few small slash piles that may be created during any thinning operation should not pose a significant problem.

It is important to minimize fire-related injuries to residual trees when burning piles, particularly during periods of below normal precipitation. Piles should not be burned if they are located near the boles of live trees. Prolonged exposure of roots and lower boles to lethal heating could kill trees outright or increase their susceptibility to bark and engraver beetle attack.

If you have any questions regarding this report and/or need additional information please contact me at 530-252-6431 or at dcluck@fs.fed.us.

/s/ Danny Cluck

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